

SECTION 13 11 30

SWIMMING POOL FILTRATION SYSTEM - ALTERNATE NO. 1

PART 1.0 GENERAL

1.1 DESCRIPTION OF WORK

- A. All construction and equipment shall be in accordance with standard industry practices, using new material to produce a quality-finished product
- B. It is intended that the Pool Contractor shall furnish and install a complete and operating, high-rate sand filtration system.
- C. Any piping, pipe supports or item of equipment obviously a part of the filter system and necessary to its operation but not specifically mentioned herein or on the drawings shall be furnished by the Pool Contractor at no extra cost.
- D. The filter system specified is NSF listed and approved. Any filter (or filter lining if any) offered under these specifications shall be NSF listed at the time of offering (bid date). Such listing shall be evidenced by the filter model number appearing in the current NSF listing for swimming pool filters at the flow rate required for this project. The filter shall be a product of a manufacturer regularly engaged in the fabrication of water filtration equipment and who has a minimum of five (5) years experience in this field.
- E. It is not the intent of these specifications to, in any way, limit or restrict the bidder in the preparation of its bid. It is assumed that unless otherwise stated, the bidder is offering the equipment, products, and quantities of items as specified herein and is totally obligated to furnish that equipment in literal compliance with these specifications. Procedures for substitutions are addressed elsewhere in these specifications.

1.2 SHOP DRAWINGS

- A. The Pool Contractor shall prepare shop drawings indicating the materials, size and placement of all piping and equipment to be furnished and submit for Owner's approval if different than indicated on the drawings.

- B. The drawings shall indicate the general arrangement of the pool plumbing and mechanical equipment. Pool Contractor shall be responsible for proper fitting of materials and equipment into the space allotted without significant alteration.
- C. The Pool Contractor shall provide shop drawings or catalogue cuts for all components to be utilized in the filter room and submit same for approval. If the Pool Contractor utilizes any approved substitutions or major components other than those stipulated as the basis for design, provide detailed shop drawings on construction and equipment layout.
- D. Provide detailed shop drawings of the items of equipment being provided, indicating the dimensions, material of the filter tanks, valves, actuators, programmer & accessory components.
- E. Provide a complete set of operating instructions, embracing the operational functions and recurring maintenance processes involved in connection with the complete filtration system.

1.04 MATERIALS

- A. New Piping: All main drain, filter system and filter room piping shall be PVC Type 1-1220, schedule 80, conforming to commercial standards, U.S. Department of Commerce, CS-207-60, and shall be approved by NSF.
- B. Chemical Feed Lines: Chemical feed lines shall be of plastic or a material impervious to chemical being fed.
- C. Fittings: Fittings shall be of similar schedule and material as pipe and shall be capable of developing full strength in the piping system.
- D. Pipe supports shall be galvanized Unistrut with appropriate fittings. It is specifically noted that cut pipe sections, clevis hangers, riser clamps or other similar support fittings will not be permitted. Threaded rod shall be galvanized and shall only be used when hanging Unistrut from above.
- E. Valves:
 - 1. Up to and including 1" - "Compac" PVC ball valves.
 - 2. 1" up to and including 2 1/2" - "True-Union" PVC ball valves.
 - 3. 3" up to and including 6" - Lever operated butterfly valves.
 - 4. 8" and larger - Gear operated butterfly valves.
 - 5. Butterfly valves shall be nylon-coated, iron body, or PVC wafer-style valves with quick opening (quarter turn) handles for full open,

suitable for intended use.

PART 2.0 FILTRATION EQUIPMENT

2.01 FILTER REQUIREMENT

- A. The filter system specified for this project shall consist of a single-cell, high-rate, pressure, sand filter as manufactured by the Pentair or approved equal.
- B. The pool system shall have a filtration capacity of 84 GPM when operated at a filtration rate of 11.9 GPM per square foot of filter area. The filter shall be capable of recirculating the entire contents of the pool, approximately 30,180 gallons, in a six-hour period when operating at this rate. The filter shall be model TR-140C or approved equal.

2.02 FILTER TANK COMPONENTS

- A. Filter tank shall be 36 inches in diameter as noted on drawings and shall be constructed of fiberglass.
- B. There shall be a 2.0 influent connection and a 2.0 effluent connection in each tank. A tank drain shall be provided.
- C. Overdrain-Each tank shall be supplied with a pressure equalizing overdrain system
- D. Underdrain-Each tank shall be supplied with a pressure equalizing underdrain distributor system.
- E. Underdrains shall be surrounded with filter gravel as shown of manufacturer's shop drawings.

2.03 FACE PIPING

- A. The Contractor shall supply and install a Pentair model 61050 multiport valve or equal approved by the filter manufacturer.
- B. The total backwash rate must not exceed 106 GPM.

2.04 AIR RELEASE

- A. There shall be provided an automatic air release system.

2.05 FILTER MEDIA

- A. The filter shall be supplied with a single grade of filter media. All media (sand) shall be cleaned and free from any clay or limestone deposits.
- B. The filter sand shall be No. 20 with a particle size of .45mm and a uniformity coefficient of 1.45 maximum.
- C. The filter sand shall be supplied in separate bags containing approximately 1 cubic foot or less.

2.06 COMMISSIONING SERVICES

- A. A qualified representative of the Contractor shall visit the site work after the installation of the filter has been completed and shall put the filter into operation and shall assist and instruct the Owner's representative in the operation of the filter.

2.07 WARRANTY

- A. The filter manufacturer shall guarantee in writing that each filter shall be free of defects for a period of one year.

3.0 PUMPS AND MOTORS

3.01 RECIRCULATION PUMP

- A. The Contractor shall supply and install one Pentair *Whisperflow* 2 hp pump and motor, model WFK-8, for the pool recirculation.
- B. Pump shall be completely constructed of non-corrosive materials and shall include integral hair and lint strainers.
- C. Pumps shall be 208/230 volt, three phase

3.02 HYDROTHERAPY JET PUMP

- A. The Contractor shall supply and install one Pentair *Whisperflow* 3 hp pump

and motor, model WFK-12, as a feature pump

- B. Pumps shall be completely constructed of non-corrosive materials and shall include integral hair and lint strainers.
- C. Pumps shall be 208/230 volt, three phase

4.0 GAUGES

- A. The Pool Contractor shall supply and install 0-60 psi, 4½" influent and effluent pressure gauges before and after the filter as manufactured by Weksler, Marsh or equal.
- B. The Pool Contractor shall supply and install one 4½" vacuum gauge, 0-30 inches mercury, as manufactured by Weksler, Marsh or equal.
- C. The Pool Contractor shall supply and install one 4½" pressure gauge 0-60 psi, as manufactured by Weksler, Marsh or equal.
- D. Gauges influent and effluent to the pump shall be located so as to accurately reflect pump vacuum and discharge pressure for the purpose of calibrating flow meter.

PART 5.0 FLOW CONTROLS AND METERS

5.1 FLOW METER - FILTERED WATER SUPPLY

- A. The Pool Contractor shall supply and install one (1) rate of flow meter that shall be installed on the filtered return line, as noted on drawings.
- B. Flow meter shall be digital, pipe-mounted as manufactured by Blue & White, model RT-20058-GPM-1 or equal

PART 6.0 MAKE-UP WATER SYSTEMS

6.1 AUTOMATIC WATER LEVEL CONTROL SYSTEM

- A. The Contractor shall furnish and install an automatic water level control unit as herein specified and as noted on the project drawings.
- B. The automatic water level controller assembly shall be a microprocessor based system designed to maintain the water level to within 1/8" of desired level.
- C. The level controller shall utilize a removable, hermetically sealed

stainless steel immersion type 3 probe (1 ground) system with a probe holder and control panel.

- D. The vertical probe chamber shall be a field-fabricated stand-pipe as shown on the drawings.
- E. The auto-level sensing system shall additionally include a 1" normally closed solenoid valve and 1" control and manual by-pass valves.
- F. The automatic water level control system shall consist of the following or equivalent components:

Control relay: Warrick # 16VMC1A121010-10 (One Required)

Probe Holder: Warrick # 3G3B1 (One Required)

Probes: Warrick # RX G4 (Three Required)

Slow-Closing Solenoid Valve: Asco # 8221G005 (One Required)

- G. Make-up water shall be added via a second field-fabricated stand pipe with an outfall leading to a convertor connection port as shown on the project drawings.

PART 7.0 POOL HEATING SYSTEMS

6.1 HEAT SYSTEM PIPING & COORDINATION

- A. The Contractor shall furnish and install branches in the filtered water supply piping for connection to the pool dehumidification system heat recovery piping as shown on the project drawings. The actual connecting piping is not included in the work of this section. Contractor shall coordinate with other trades involved in this piping and shall make every effort to accommodate a booster pump located below the pool piping to facilitate a gravity feed to said pump.
- B. The back-up heat for the pool will be a hot-water heat exchanger supplied and installed under a scope of work described in other sections of these specifications and is not included in the work of this section. The Pool Contractor shall supply and install piping to connect said heat exchanger to the pool filtered water supply piping as shown on the project drawings. The interconnecting piping and any associated valves shall be CPVC.